Amendments to the Claims:

This following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): Apparatus for adding wavelengths to a WDM signal, said apparatus comprising:

an optical combination structure that combines a set of N/P wavelengths into a single combined optical signal while maintaining a linear orthogonal polarization state for pairs of said wavelengths and while adding optical noise incoherently to minimize optical noise; wherein P is greater than one, N is a total number of wavelengths to be added to said WDM signal and where each of said N/P wavelengths are coupled to said optical structure by separate inputs;

a first optical device having P input ports that combines said single combined output signal at an input at each of said P input ports into a single output signal, each of said P input ports accepting non-overlapping interleaved sets of N/P wavelengths; and

an optical [combiner] coupler that combines said signal output signal with said WDM signal.

Claim 2 (original): The apparatus of claim 1 wherein said first optical device comprises a cyclic AWG.

Claim 3 (original): The apparatus of claim 1 wherein said first optical device comprises an optical interleaver.

Claim 4 (original): The apparatus of claim 1 wherein N is a total number of wavelengths of a wavelength grid of a WDM communication system carrying said WDM signal.

Claim 5 (original): The apparatus of claim 1 wherein optical energy is present at all of said P input ports.

Claim 6 (original): The apparatus of claim 1 wherein optical energy is not present at at least one of said P inputs.

Claim 7 (Currently Amended): The apparatus of claim 1 wherein said optical combination structure further comprises:

a variable optical attenuator;

a polarization beam combiner; and

an optical filter.

Claim 8 (previously presented): The apparatus of claim 7 wherein said optical filter comprises a bandpass thin film filter.

Claim 9 (previously presented): The apparatus of claim 7 wherein said optical combination structure comprises a polarization beam combiner and a quarter waveplate where said pair of wavelengths share a polarization on at least one input.

Claim 10 (Currently Amended): The apparatus of claim 1 wherein each pair of said N/P wavelengths are input to said optical combination structure with linear orthogonal polarization, said optical combination structure further comprises:

means for reducing noise level by causing the noise from each input to add incoherently; and

an interferential filter for [combines] combining two adjacent multi-wavelength subbands of said N wavelengths.

Claim 11 (previously presented): The apparatus of claim 10 wherein said optical combination structure comprises a polarization beam combiner.

Claim 12 (withdrawn): Apparatus for dropping wavelengths from a WDM signal in a WDM communication system employing a WDM grid having N wavelengths, said apparatus comprising:

a first optical device that taps off a portion of said WDM signal; and

a second optical device that receives said tapped off portion of said WDM signal as input and outputs non-overlapping interleaved sets of N/P wavelengths via each of P output ports.

Claim 13 (withdrawn): The apparatus of claim 12 wherein said second optical device comprises a cyclic AWG.

Claim 14 (withdrawn): The apparatus of claim 12 wherein said second optical device comprises an optical deinterleaver.

Claim 15 (withdrawn): The apparatus of claim 12 further comprising:

a third optical device connected to one of said P output ports.

Claim 16 (withdrawn): The apparatus of claim 15 wherein said third optical device comprises a thin film filter.

Claim 17 (withdrawn): The apparatus of claim 12 further comprising:

a cascaded series of filters connected to one of said P output ports, each one of said cascaded series selecting a single wavelength for output.

Claim 18 (withdrawn): The apparatus of claim 12 further comprising:

a splitter connected to one of said P output ports.

Claim 19 (withdrawn): The apparatus of claim 18 wherein said splitter has N/P outputs.

Claim 20 (withdrawn): The apparatus of claim 18 wherein said splitter has fewer than N/P outputs.

Claim 21 (previously presented): A method for adding wavelengths to a WDM signal, said method comprising:

providing a plurality of non-overlapping sets of wavelengths of optical energy to separate inputs of an optical structure;

combining, at said optical structure, said sets of said wavelengths into a combined optical signal while maintaining a linear orthogonal polarization state for pairs of said sets of wavelengths and while adding optical noise incoherently to minimize optical noise;

receiving said single combined optical signal at at least one input port of a first optical device having P input ports; and

combining said single combined optical signal, if any, at each of said to P input ports into a combined optical output signal from said first optical device; and

combining said combined optical output signal with said WDM signal.

Claim 22 (original): The method of claim 21 wherein said first optical device comprises a cyclic AWG.

Claim 23 (original): The method of claim 21 wherein said first optical device comprises an optical interleaver.

Claim 24 (previously presented): The method of claim 21 wherein said plurality of non-overlapping sets of wavelengths of optical energy comprise a total number of wavelengths, N, of a wavelength grid of a WDM communication system carrying said WDM signal.

Claim 25 (original): The method of claim 21 wherein optical energy is input to all of said P input ports.

Claim 26 (previously presented): The method of claim 21 wherein said optical combination structure further comprises:

a variable optical attenuator;

a polarization beam combiner; and

an optical filter.

Claim 27 (previously presented): The method of claim 26 wherein said plurality of wavelengths of optical energy comprises exactly N/P single wavelength signals.

Claim 28 (previously presented): The method of claim 26 wherein said plurality of wavelengths of optical energy comprises less than N/P single wavelength signals.

Claim 29 (withdrawn): A method for dropping wavelengths from a WDM signal in a WDM communication system employing a WDM grid having N wavelengths, said method comprising:

tapping off a portion of said WDM signal; and

directing said tapped-off portion to an optical device that receives said tapped off portion of said WDM signal as input and outputs non-overlapping interleaved sets of N/P wavelengths via each of P output ports.

Claim 30 (withdrawn): The method of claim 29 wherein said optical device comprises a cyclic AWG.

Claim 31 (withdrawn): The method of claim 29 wherein said optical device comprises an optical deinterleaver.

Claim 32 (withdrawn): The method of claim 29 further comprising:

directing output of one of said P output ports to input of a splitter having N/P outputs.

Claim 33 (withdrawn): The method of claim 32 further comprising:

for each of said N/P outputs, providing an optical filter to select a single wavelength.

Claim 34 (withdrawn): The method of claim 29 further comprising:

directing output of one of said P output ports to input of a splitter having less than N/P outputs.

Claim 35 (withdrawn): The method of claim 34 further comprising:

for each of said less than N/P outputs, providing an optical filter to select a single wavelength.

Claim 36 (withdrawn): The method of claim 29 further comprising:

directing output of one of said P output ports to an optical filter that selects a single wavelength.

Claim 37 (Currently Amended): Apparatus for adding wavelengths to a WDM signal, said apparatus comprising:

means for inputting optical energy having a plurality of pairs of wavelengths each having a linear orthogonal polarization state and minimized optical noise to at least one of P inputs of a first optical device each of said P input ports accepting non-overlapping interleaved sets of N/P wavelengths wherein P is greater than one and N is a total number of wavelengths accepted by said P input ports;

means for combining said optical energy input to said at least one of P inputs and outputting said combined optical energy from said first optical device; and

means for combining said combined optical energy with said WDM signal.

Claim 38 (withdrawn): Apparatus for dropping wavelengths from a WDM signal in a WDM communication system employing a WDM grid having N wavelengths, said apparatus comprising:

means for tapping off a portion of said WDM signal; and

means for directing said tapped-off portion to an optical device that receives said tapped off portion of said WDM signal as input and outputs non-overlapping interleaved sets of N/P wavelengths via each of P output ports.

Claim 39 (previously presented): The apparatus of claim 37 wherein said means for inputting optical energy comprises:

an optical structure that combines a set of N/P wavelengths into a single combined optical signal while maintaining a linear orthogonal polarization state for pairs of said wavelengths and while adding optical noise incoherently to minimize optical noise; wherein P is greater than one, N is a total number of wavelengths to be added to said WDM signal and where each of said N/P wavelengths are coupled to said optical structure by separate inputs.

Claim 40 (previously presented): The apparatus of claim 39 wherein means for combining said wavelength pairs while adding optical noise incoherently to said single output signal to minimize optical noise comprises:

a variable optical attenuator;

a polarization beam combiner; and

an optical filter.